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ADDITIONAL RECORDS FOR AN ATLANTIC REEF LOBSTER, *ENOPLOMETOPUS ANTILLENSIS* LÜTKEN, 1865 (CRUSTACEA, DECAPODA, ENOPLOMETOPIDAE)

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Abstract.—Additional records from the Gulf of Guinea, the Caribbean Sea, Bermuda, and Florida are provided for *E. antillensis* Lütken, 1865. The synonymy of *E. dentatus* Miers, 1880, with *E. antillensis* is confirmed.

The astacidean genus *Enoplometopus* A. Milne Edwards, 1862, now includes two subgenera and nine species (Holthuis 1983: 282; Kensley & Child 1986:520; de Saint Laurent 1988:61,62). Two representatives of the subgenus *Hoplometopus* Holthuis, 1983, occur in the Atlantic: *E. callistus* Intès & Le Loeuff (1970:1442), with its junior synonym *E. biafri* Burukovsky (1972:180) (see Holthuis 1983:281), from the East Atlantic, and *E. antillensis* Lütken, 1865, from amphi-Atlantic localities. Another member of this subgenus, *E. holthuisi* Gordon, 1968, is known from several localities in the Indo-West Pacific (Holthuis 1983:297), and de Saint Laurent (1988) recently described a fifth species, *Hoplometopus gracilipes,* from the Loyalty Islands. De Saint Laurent elevated the subgenus *Hoplometopus* to generic status. All five representatives of the nominal subgenus occur only in the Indo-West Pacific (Holthuis 1983; Debelius 1984, 1986; Kensley & Child 1986).

De Saint Laurent (1988) also established the family Enoplometopidae and transferred the family from the Thalassinidea to the Astacidea.

Holthuis (1983:281–282) enumerated morphological differences between the two subgenera, and it appears that these are partly accompanied by differences in color pattern also. Members of the nominal subgenus show color patterns dominated by scattered spots or lines of pigment on the abdomen and carapace, whereas two of the four members of *Hoplometopus* each have distinctive irregular circles of pigment, one white, one reddish, around a central white spot on each side of the red to reddish-orange carapace. Remnants of this pattern are visible in recently preserved specimens of *E. antillensis* reported here. The pattern is clearly shown for specimens of *E. antillensis* and *E. holthuisi* by the following authors: Cousteau (1958, color figure of *E. antillensis* on p. 393); Forest (1959, black and white print of *E. antillensis*; same figure as in Cousteau 1958); Debelius (1984, color figure of *E. holthuisi* on p. 37); Debelius (1986, color figures of *E. antillensis* and *E. holthuisi* on p. 13); Kosaki (1987, color figure of *E. holthuisi* on p. 14); Brady (1987, black and white figure of *E. antillensis* on p. 26); and Hunziker (1988, color figures of *E. holthuisi* on pp. 83 and 84). The pattern also was described by Holthuis (1983:297) based on color figures of *E. holthuisi* published by Daum (1982) and George & George (1979). In contrast, *E. callistus* lacks this distinctive color pattern (P. Le Loeuff, in litt.), as does *H. gracilipes* (M. de Saint Laurent, in litt.).

Until recently, *Enoplometopus antillensis* had been recorded only once in the West Atlantic north of Brazil (i.e., "West Indies," Lütken 1865). Another nominal species, *E. dentatus* Miers, 1880, from St. Helena Island, had been questionably synonymized with *E. antillensis* by Holthuis (1946:79),

then more positively by Chace (1966:634) and Gordon (1968:80, footnote), although none of those authors had had an opportunity to compare the types of the two species. Gordon (1968) published the first detailed description of the type of *E. dentatus,* compared it with two unpublished drawings of the type of *E. antillensis,* and concluded that the two species were conspecific. Examination by one of us (D.K.C.) of material sent by Mr. John Brady for identification after the discovery of a population of *E. antillensis* off Florida (Brady 1987) revealed some apparent discrepancies between his material and Gordon's description of the type of *E. dentatus.* Our finding of the apparent discrepancies prompted us to compare the types of the two species, that of *E. dentatus* in the British Museum (Natural History), London (BM), and that of *E. antillensis* in the Zoological Museum, Copenhagen (ZMC), and to examine other Atlantic specimens of the genus in the collections of the National Museum of Natural History, Smithsonian Institution (USNM), the Florida Department of Natural Resources (FSBC I), and the Indian River Coastal Zone Museum (IRCZM). The results are presented here.

Enoplometopus antillensis Lütken, 1865
Figs. 1–4

Enoplometopus antillensis Lütken, 1865: 265.—De Man, 1916:96.—Holthuis, 1946:72, pl. 5, fig. h, pl. 7, fig. b.–Chace, 1966:634—Gordon, 1968:80 [footnote].—Fausto Filho, 1970:55, figs. 1–2.–Burukovsky, 1972:188, fig. 2.—Fausto Filho, 1976:222, fig. 1.—Holthuis, 1983: 281, 282.—Debelius, 1986: lower right fig. on p. 13.

Enoplometopus dentatus Miers, 1880:381, pl. 15, fig. 7.—De Man, 1916:96.—Holthuis, 1946:72.—Gordon, 1968:80, figs. 1, 3–7.—Intès and Le Loeuff, 1970: 1442.—Holthuis, 1983:281.

Enoplometopus sp.—Gurney, 1938:296 [part; origin of figured specimens unknown].—Forest, 1959: pl. 3, fig. 4.

nephropsid.—Cousteau, 1958: color fig. on p. 393.

Enoplometopus Antillensis.—Brady, 1987: 26, unnumbered fig.

Previous records.—East Atlantic: 1° 25′10″S, 5°36′10″E, São Tomé Island, Gulf of Guinea (Cousteau 1958, Forest 1959).

Central Atlantic: St. Helena Island [15°58′S, 05°43′W] (Miers 1880, Chace 1966, Gordon 1968).—Off Brazil, 03°17′S, 29°57′W (late larva; Gurney 1938).

West Atlantic: Off Rio Grande do Norte State, Brazil (Fausto Filho 1970).—Off northeast coast of Brazil (Fausto Filho 1976).—West Indies (Lütken 1865, Gordon 1968).—About 1 mile NE of Lake Worth Inlet, Florida (Brady 1987).

Material.—East Atlantic: Gulf of Guinea, off Gabon, 3°30′S, 8°53′E, 110 fm (=201 m), *Geronimo* Sta. 227/2, 7 Sep 1963: 1 juvenile, cl 6.5 mm (USNM 136692).

Central Atlantic: St. Helena Island: 1 female, cl 19.5 mm (BM 68.57; holotype of *E. dentatus* Miers).

West Atlantic: Bermuda: Half way between Kitcheners and N.E. marker, from gut of red hind caught in 10 fm (=18 m), W. Soares, 24 Feb 1985: 1 male, cl 38 mm (USNM).

East coast of Florida: Spanish Anchor Reef, about 1 mile N of Lake Worth Inlet, 90 ft (=27 m), John Brady, 15 Dec 1985: exuvium of 1 male, cl 30 mm (USNM 231216).—Same locality, 27 Aug 1985: 1 damaged female, tl about 110 mm (FSBC I 31885).—Larsen's Valley Reef, about 1 mile NE of Lake Worth Inlet, 65 ft (=20 m), John Brady, 15 Feb 1986: 1 female, cl 43 mm (IRCZM 89:6349).

West Indies: 1 female, cl 20 mm (ZMC; holotype of *E. antillensis* Lütken).

Bahama Islands: Grand Bahama Island, SE of Settlement Point, D. de Sylva et al., Sta. 355, 27 Jul 1961: 1 female, cl 15.5 mm (USNM 126226).

Panama: Golfo de Mesquites, Bahía de

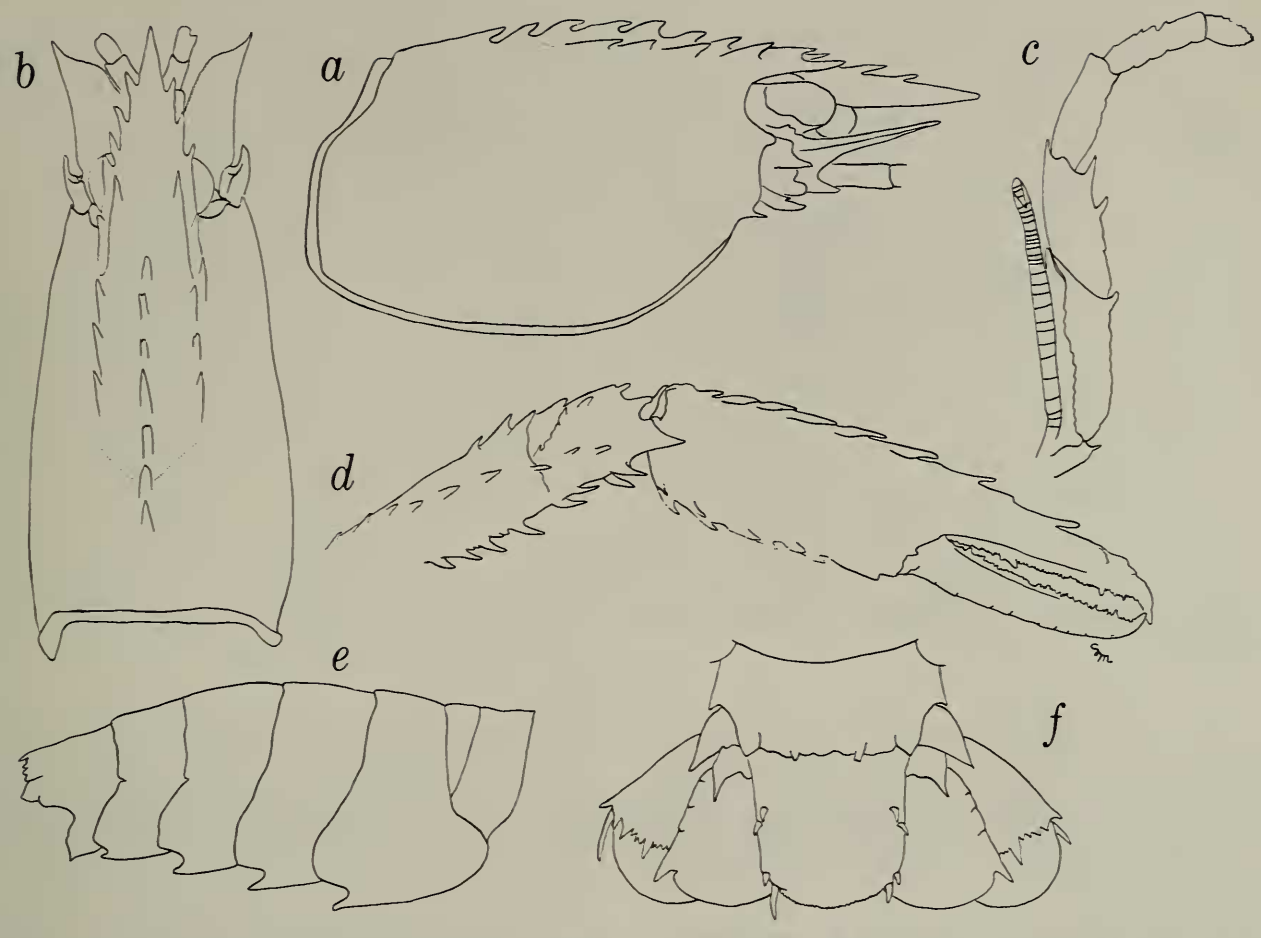

Fig. 1. Holotype of *Enoplometopus antillensis* Lütken. *a,* Carapace, Lateral view; *b,* Carapace, dorsal view; *c,* Third maxilliped; *d,* Cheliped; *e,* Abdomen, lateral view; *f,* Posterior margin of sixth abdominal somite and tail fan.

Almirante, 9°25′30″N, 82°20′W, lobster trap, 3–11 fm (=5–20 m), *Pelican* Sta. 930, 23–25 May 1963: 1 male, cl 31 mm (USNM 170659).

Netherlands West Indies: Bonaire, in caves, 30 ft (=9 m), R. V. Harrison, 21 Apr 1975: 1 ovigerous female, cl 31 mm (USNM 155655).

Remarks.—In June 1986, one of us (R.B.M.) was able to compare the holotypes of *E. dentatus* Miers and *D. antillensis* Lütken at the British Museum (Natural History), London. As a result of this comparison, we agree that these species are conspecific, as already suggested by others. Apparent discrepancies between Gordon's account of the type of *E. dentatus* and accounts in the literature of *E. antillensis* are largely attributable to the poor condition of Miers' type specimen, which apparently had dried out at one time. We provide here some sketches of the type of *E. antillensis* (Fig. 1).

In her account of the type of *E. dentatus,* Gordon noted that there was no inferodistal spine on the merus of the second pereopod. The spine is in fact present on all but one of the legs still loose with the holotype (Fig. 2*a*); on the second pereopod it appears to have been worn off. Gordon's figure of the posterior margin of the sixth abdominal somite (see our Fig. 2*b*) is a little misleading; the margin is not nearly so smooth as she shows it. Numbers of spines on the outer surface of the dactyli of the third and fourth pereopods could not be verified on the type of *E. dentatus,* as the ends of the dactyli were missing. The terminal spine of the antennal scale is not rounded anteriorly as described by Gordon; the tip appears to have been broken off, possibly since she examined it.

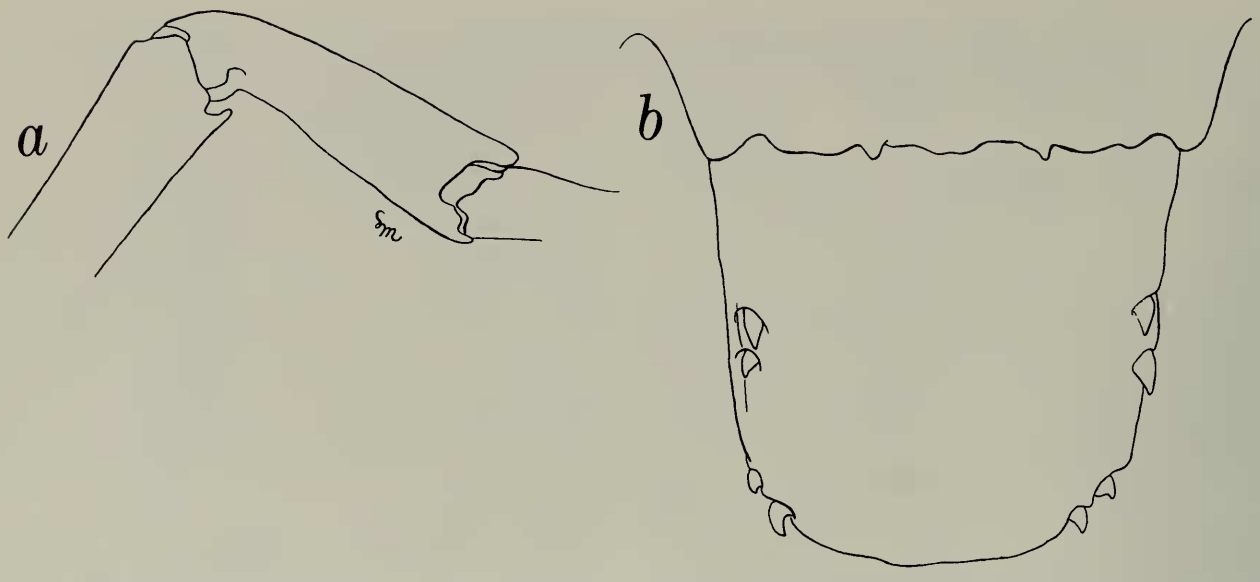

Fig. 2. Holotype of *Enoplometopus dentatus* Miers. *a,* Distal part of merus and carpus of second pereopod; *b,* Telson.

The color pattern of this species is quite distinctive. Overall, the body has an orange to orange red cast, and the long setae fringing the chelipeds are reddish; marginal spines on chelipeds are red proximally and have a white tip. Walking legs and third maxillipeds are banded with white, as are meri and fingers of the chelipeds; propodi of the chelipeds are red with darker red granules. In dorsal view, there is a darker red stripe down the center of the body. On the carapace each dorsal spine bears a white spot, and on the abdomen there are white spots on the darker median stripe, as well as two prominent white spots laterally on each abdominal somite. Much of the lateral surface of the carapace is marked with wavy white lines, which, anteriorly, are replaced by a large, irregular, reddish circle surrounding a white spot (Fig. 3).

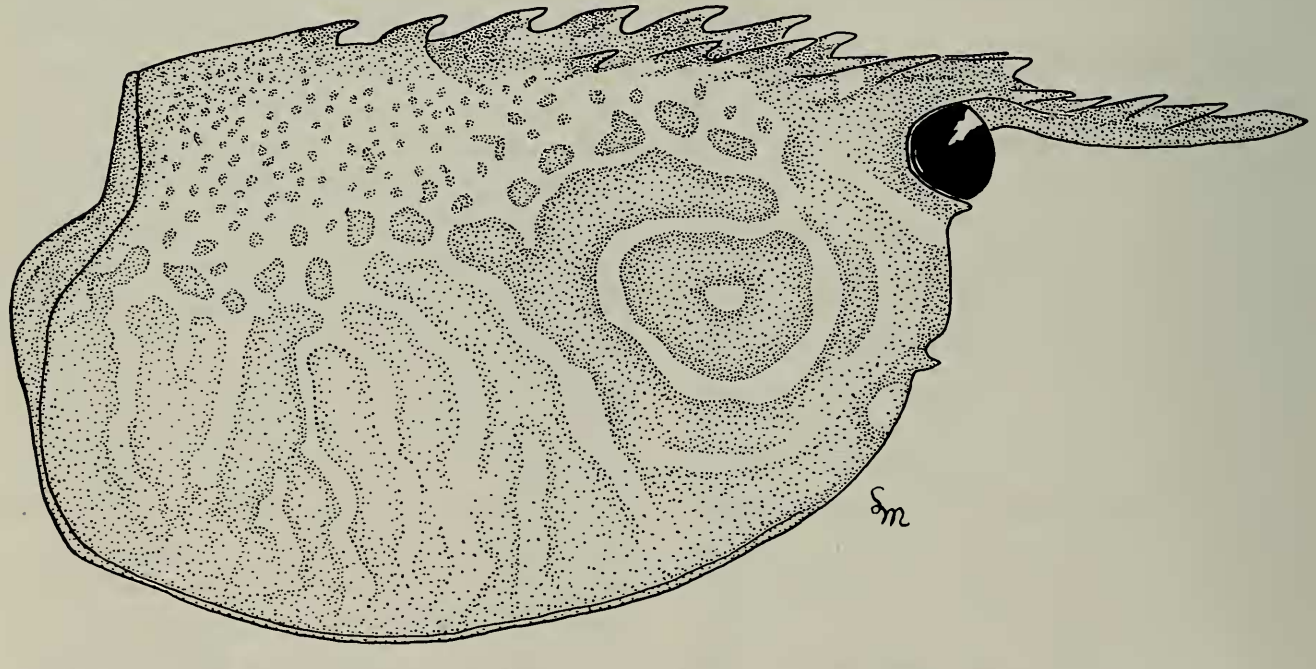

Fig. 3. *Enoplometopus antillensis* Lütken. Color pattern of carapace of exuvium of male from Florida.

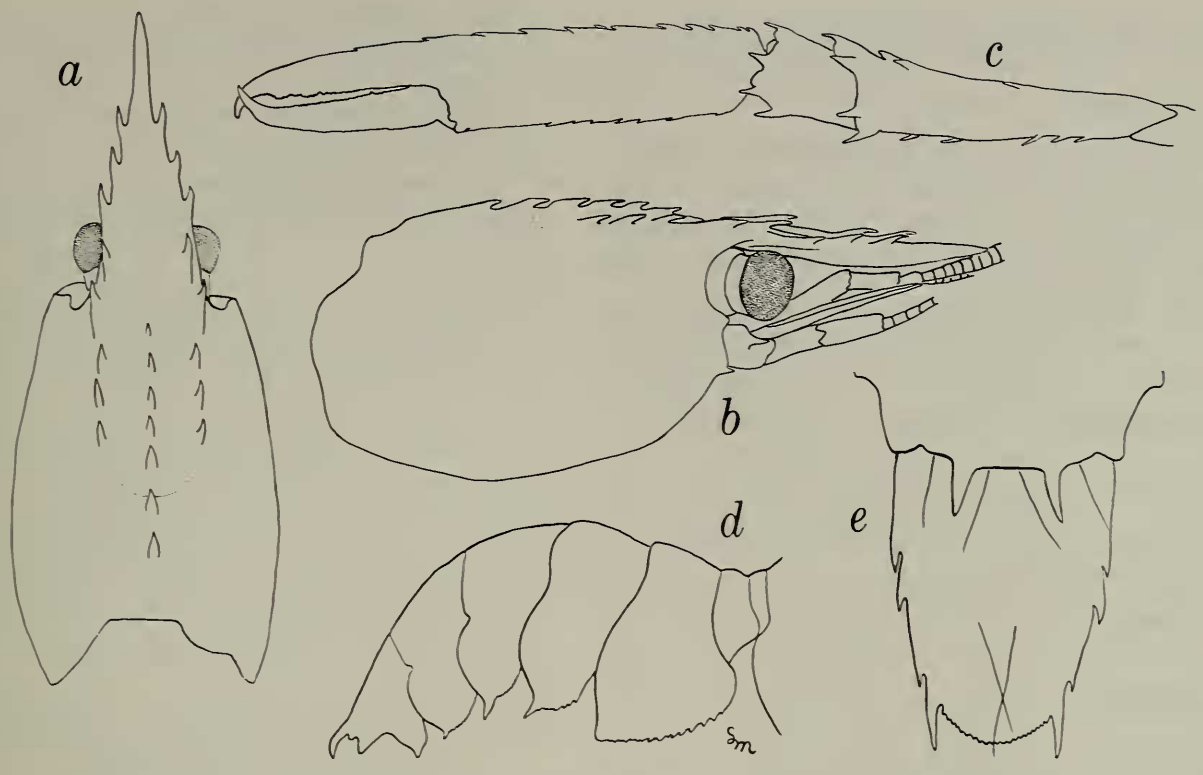

Fig. 4. *Enoplometopus antillensis* Lütken. Juvenile from Gabon. *a,* Carapace, dorsal view; *b,* Carapace, lateral view; *c,* Cheliped; *d,* Abdomen, lateral view; *e,* Posterior margin of sixth abdominal somite and telson.

Records for *E. antillensis* given here extend the known range of the species in the West Atlantic northward to continental North America and Bermuda. Off Florida, specimens have been captured or observed (John Brady, in litt.) at the following localities between West Palm Beach and Fort Pierce: 26°41′22″N, 80°00′09″W, depth 60 ft (=18 m), four individuals seen at night only; 26°47′75″N, 79°59′28″W, depth 100 ft (=30 m), 18 individuals seen during day and night; 27°28′02″N, 80°09′23″W, depth 50 ft (=15 m), two specimens seen during daytime. All specimens were seen on limestone ridges that parallel the shoreline in those areas. The lobsters are very cryptic, usually hiding in crevices within the ledges during day and emerging at night, except in late March and early April in West Palm Beach. Numerous specimens, as many as five on one dive, were seen during the day, and they appeared to display aggressive territorial behavior. In contrast, few or none were observed during the day at the same location in May.

The immature specimen from the Gulf of Guinea (Fig. 4) agrees well with other material of this species, in spite of its unusually deep occurrence in 201 m, and differs from *E. callistus* in the characters listed by Intès and Le Loeuff (1970). There are five rather than four median spines and three rather than two lateral spines on the carapace, and there are two rather than three posterior spines on the sixth abdominal segment. The anterior telson spines are close together and the claws are long and slender.

Gurney (1938) reported a late larva of an *Enoplometopus* that may be identifiable with this species.

According to M. de Saint Laurent (in litt.) there is a previously unreported specimen of this species from Madeira in the Muséum National d'Histoire Naturelle in Paris.

Acknowledgments

Torben Wolff, Zoological Museum, Copenhagen, made possible the direct comparison of the holotype of *E. antillensis* Lüt-

ken with that of *E. dentatus* Miers by sending Lütken's type to the British Museum (Natural History), London, where one of us (R.B.M.) could examine both types together. Both Dr. Wolff and R. W. Ingle of the British Museum also provided working space and access to their collections. We thank Paula Mikkelsen for allowing us to work with material in the Indian River Coastal Zone Museum at the Harbor Branch Oceanographic Institution, Link Fort, Florida. L. B. Holthuis made available a copy of the 1972 paper by Burukovsky, for which we thank him. John Brady of Sebastian, Florida, first brought the occurrence of *E. antillensis* off the east coast of Florida to our attention, and subsequently made special efforts to secure material for us; he also provided us with color photographs of this species. We thank M. de Saint Laurent, Muséum National d' Histoire Naturelle, Paris, for telling us about the references to *E. antillensis* from the Gulf of Guinea and Gurney's paper, which we otherwise would have overlooked, and for her comments on a draft of our manuscript. We thank Thomas H. Perkins and William G. Lyons, Florida Marine Research Institute, for their comments on the manuscript. The figures were prepared by Lilly King Manning.

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